Title: Stellar Mass in High Redshift Clusters: Guaranteed Time Observations with SIRTF.

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The Space Infrared Telescope Facility (SIRTF) plans to begin observations in 2003. I will describe a guaranteed time observation program by the Infrared Array Camera (IRAC) team to measure the rest-frame 1.6 micron luminosity function of galaxies in x-ray selected clusters with $z > 0.6$. We expect to reach a depth of L^*+4 at $z=1$. The sample consists of about 40 clusters with redshifts of up to 2.2, primarily selected from the Rosat Deep Cluster Survey, augmented by other clusters with $z > 0.6$ and known to have x-ray emission, and a few $z > 1$ clusters around radio galaxies for which the velocity dispersion or Faraday rotation implies a massive cluster is present. Locally, rest 1.6um emission correlates linearly with a galaxy's dynamical mass. X-ray emission arises from the intracluster medium, which dominates the baryonic mass in local galaxy clusters. Hence the 1.6um luminosity function in x-ray selected clusters as a function of redshift can be usefully compared to models for the growth of structure.